Response to Records Request Questions

1. Provide monthly usage records of the chemical additive Indulin AA-86 from June 1, 2016 to present, December 19, 2016.

Ergon Asphalt & Emulsions, Inc. ("Ergon") produces nine different asphalt emulsion products at the leased premises located at the Valero Asphalt Terminal at 6746 Up River Road, Corpus Christi, Nueces County, Texas. The leased premises are referred to in this response as the "Facility". Indulin AA-86 is added in the production process to three of these products, CRS-2, CRS-2P, and EBL. Indulin AA-86 is used to create a cationic soap. Each batch of the CRS-2, CRS-2P, and EBL emulsion products requires this cationic soap as a surfactant. The cationic soap is mixed with asphalt droplets in a mill, where it attaches to the individual asphalt droplets and creates an emulsion. In EBL and CRS-2P batches, latex is injected as well to create elasticity in the emulsion product.

We attach the batch records for CRS-2, CRS-2P, and EBL for each month from June 2016 to December 2016 and our month end inventories for June 2016 to November 2016. The month end inventories do not cover December 2016, as Ergon does not take such inventory until the last day of the month. Please note that there is sometimes a discrepancy between the total Indulin AA-86 usage reflected in the batch records versus the month end inventories. Ergon believes that the batch records provide the accurate measure of Indulin AA-86 usage, as the Indulin AA-86 used in each batch is directly measured using a mass flow meter. In contrast, month end inventories are taken by hand gauging. On a monthly basis, Ergon conducts a gross inventory of all chemical products at the Facility. To do this, Ergon performs hand gauging. Hand gauging is performed by an operator using a hand held tape measure to measure the distance between the top of the tank and the surface of the liquid. A single inch discrepancy in an operator's measurement can account for as much as a 35 gallon discrepancy. Accordingly, while helpful for inventory purposes, it is not an accurate overall usage measurement. Hand gauging provides the company with directional gross usage data, which the Facility uses for tracking general inventory. Those numbers do not match precisely with the measured usage records, nor would Ergon expect them to. The total difference between the batch records and month end inventories spanning June 2016 through November 2016 is 92.5 gallons of Indulin AA-86, possibly attributable to differences in operator hand gauging. Although Ergon believes that the batch records are the accurate and precise measure, Ergon has included the month end inventories for completeness.

2. Provide the amount of the chemical additive Indulin AA-86 per batch and the number of batches per month from June 1, 2016 to present, December 19, 2016. Include dates for each batch and the amount of time for the fill and empty of the batch. Additionally, provide the size and capacity of each tank involved in the batch process.

Attached are the batch records for each batch of emulsion product, CRS-2, CRS-2P, and EBL, using Indulin AA-86 from June 1, 2016 to December 19, 2016. For the time period requested, Ergon produced eleven batches in June, eleven batches in July, eleven batches in August, nine batches in September, fourteen batches in October, five batches in November, and three batches in December. For ease of reference, we have summarized the batch records in

monthly tables at the end of this attachment prepared for purposes of this response. The tables set out the date of each batch, the emulsion product produced, the amount of Indulin AA-86 used, and the run time. Operators record the "production start time" and the time of the "end run" to determine the run time (fill and empty time per batch are not recorded by the operator). As a general rule, the amount of time to mix the cationic soap and load it in the tanks is approximately 40 minutes.

In addition, the attached "Corpus Christi Tank Table" sets out the size and capacity of every tank located at the Facility. Tank numbers 301, 517, and 518 are involved in the production of the cationic soap using Indulin AA-86. Tank 301 is used as a storage tank for Indulin AA-86 and Indulin AA-86 is transferred from Tank 301 to Tanks 517 and 518 to create cationic soap. Tank 200 is used to produce CRS-2, Tank 201 is used to produce EBL, and Tank 203 is used to produce CRS-2P.

3. Provide detailed information on the purpose and use of the chemical additive Indulin AA-86 as it pertains to your facility. The formulation and the change in formulation criteria as it, Indulin AA-86, is used in your process.

Indulin AA-86 is an essential part of the surfactant cationic soap in the production of emulsion products. As discussed above, in order to produce its emulsion products, Ergon must mix asphalt with water, which is not possible without a surfactant. Ergon purchases the surfactant Indulin AA-86 from a supplier. Based on confidential business information provided by the supplier, Indulin AA-86 is a nonsoluble liquid, [redacted] Once the Indulin AA-86 is made water soluble, it is mixed with more water to dilute the concentrate. The resulting mixture is 98 to 99% water. Once the soap mixture is complete, it is added to a mill. The soap solution and asphalt are added to the mill simultaneously. The soap solution, when mixed with droplets of asphalt, allows water to attach to the asphalt droplets in the mill, creating Ergon's emulsion product. All of the Indulin AA-86 introduced into each batch for production of soap is consumed during the course of the batch process. A copy of the Safety Data Sheet for Indulin AA-86 is attached.

4. Provide detailed information on the purpose and use of any other chemical used in conjunction with the chemical additive Indulin AA-86 as it pertains to your facility. Include material safety data sheets for the additional compounds per chemical.

As discussed in Question 3 above, HCl is used in conjunction with Indulin AA-86. In each batch process, as the attached batch records show, a small amount of HCl is combined with Indulin AA-86 and water to create Ergon's cationic soap. The purpose of HCl is to change the amine head of the insoluble Indulin AA-86, making it a water soluble chloride salt.

This allows the Indulin AA-86 to mix with water and become an effective surfactant. HCl is the only chemical that is chemically reacted with Indulin AA-86. Latex is used in conjunction with Indulin AA-86 in the production of EBL and CRS-2P in order to increase elasticity of the residue. Only NX 4190 latex is used for EBL and CRS-2P at the Facility. Asphalt is included in each batch in conjunction with Indulin AA-86. Asphalt and latex do not chemically react with the Indulin AA-86 and instead co-exist with the Indulin AA-86 in the emulsion. Copies of the Safety Data Sheets for HCl, Indulin AA-86, asphalt, and latex (NX 4190) are attached. We have also attached a Safety Data Sheet for the cationic soap, which is composed of HCl, Indulin AA-86, and water.

Batch Tables In Response to Question 2

June 2016 Batches			
Date	Emulsion Product	Amount of Indulin AA-86	Run Time
6/1	EBL	23 gallons	120 minutes
6/6	EBL	23 gallons	120 minutes
6/7	EBL	23 gallons	60 minutes
6/8	EBL	35 gallons	90 minutes
6/9	EBL	12 gallons	50 minutes
6/10	EBL	23 gallons	85 minutes
6/13	EBL	23 gallons	*
6/15	EBL	23 gallons	*
6/17	EBL	23 gallons	*
6/22	EBL	23 gallons	1.5 hours
6/27	EBL	23 gallons	150 minutes
Total Gallons of Indulin AA-86: 254			

* One or both of “Production Start Time” and “End Run” not listed.

July 2016 Batches			
Date	Emulsion Product	Amount of Indulin AA-86	Run Time
7/6	CRS-2	24 gallons	115 minutes
7/6	CRS-2P	23 gallons	105 minutes
7/8	EBL	23 gallons	*
7/11	EBL	23 gallons	*
7/13	EBL	23 gallons	90 minutes
7/14	CRS-2	24 gallons	*
7/14	EBL	35 gallons	120 minutes
7/19	EBL	23 gallons	90 minutes
7/20	EBL	23 gallons	90 minutes
7/26	CRS-2	12 gallons	60 minutes
7/26	EBL	23 gallons	75 minutes
Total Gallons of Indulin AA-86: 256			

* One or both of “Production Start Time” and “End Run” not listed.

August 2016 Batches			
Date	Emulsion Product	Amount of Indulin AA-86	Run Time
8/1	EBL	23 gallons	90 minutes
8/2	EBL	23 gallons	90 minutes
8/4	EBL	11.5 gallons	120 minutes
8/5	EBL	23 gallons	100 minutes
8/8	CRS-2	24 gallons	90 minutes
8/10	EBL	35 gallons	150 minutes
8/12	EBL	23 gallons	120 minutes
8/25	CRS-2P	11 gallons	45 minutes
8/25	EBL	12 gallons	45 minutes
8/29	CRS-2P	23 gallons	120 minutes
8/31	CRS-2P	24 gallons	120 minutes
Total Gallons of Indulin AA-86: 232.5			

September 2016 Batches			
Date	Emulsion Product	Amount of Indulin AA-86	Run Time
9/6	CRS-2	24 gallons	120 minutes
9/12	EBL	35 gallons	180 minutes
9/14	CRS-2	24 gallons	120 minutes
9/15	EBL	23 gallons	120 minutes
9/16	CRS-2	24 gallons	90 minutes
9/19	EBL	23 gallons	70 minutes
9/28	EBL	23 gallons	90 minutes
9/29	CRS-2	24 gallons	90 minutes
9/30	CRS-2	12 gallons	120 minutes
Total Gallons of Indulin AA-86: 212			

October 2016 Batches			
Date	Emulsion Product	Amount of Indulin AA-86	Run Time
10/3	CRS-2	12 gallons	*
10/3	EBL	35 gallons	*
10/5	CRS-2	24 gallons	90 minutes
10/6	EBL	23 gallons	*
10/6	CRS-2	24 gallons	*
10/12	EBL	23 gallons	*
10/13	EBL	23 gallons	90 minutes
10/19	CRS-2P	11 gallons	60 minutes
10/19	EBL	12 gallons	60 minutes
10/21	EBL	23 gallons	80 minutes
10/25	EBL	23 gallons	100 minutes
10/27	EBL	35 gallons	150 minutes
10/27	CRS-2	24 gallons	120 minutes
10/31	EBL	23 gallons	*
Total Gallons of Indulin AA-86: 315			

* One or both of “Production Start Time” and “End Run” not listed.

November 2016 Batches			
Date	Emulsion Product	Amount of Indulin AA-86	Run Time
11/4	EBL	35 gallons	110 minutes
11/16	EBL	23 gallons	90 minutes
11/17	CRS-2P	11 gallons	85 minutes
11/17	EBL	12 gallons	30 minutes
11/22	CRS-2P	11 gallons	*
Total Gallons of Indulin AA-86: 92			

* One or both of "Production Start Time" and "End Run" not listed.

December 2016 Batches			
Date	Emulsion Product	Amount of Indulin AA-86	Run Time
12/2	CRS-2	24 gallons	*
12/12	CRS-2	24 gallons	120 minutes
12/14	CRS-2P	23 gallons	*
Total Gallons of Indulin AA-86: 71			

* One or both of "Production Start Time" and "End Run" not listed.

Corpus Christi Tank Table

Tank Number	Diameter	Height	Volume Gallons	Ft	in	Contents	Temp	Heated by	Insulated
100	12'	24'	20305	846	70.5	64/22	305	N. Gas	Yes
101	12'	24'	20305	846	70.5	120/150	290	N. Gas	Yes
102	12'	32'	24576	768	70.5	AC BLEND	300	N. Gas	Yes
120	12'	24'	34593	1504	125	120/150	285	Steam	Yes
121	12'	32'	27073			EMPTY			NIU
198	12'	20'	16919	846	70.5	Water			NIU
199	12'	20'	16919	846	70.5	Water			NIU
200	12'	30'	25379	846	70.5	CRS-2	150	H. Water	Yes
201	12'	30'	25379	846	70.5	EBL	160	H. Water	Yes
202	12'	20'	16919	846	70.5		100	N. Gas	Yes
203	12'	20'	16426	846	70.5	CRS-2P	170	H. Water	Yes
204	12'	30'	25379	846	70.5	HFRS-2P	170	H. Water	Yes
205	12'	30'	25379	846	70.5	HFRS-2P	170	H. Water	Yes
206	15'	16'	21151	1322	110.2	AE-P	100	None	No
207	15'	16'	21151	1322	110.2	SS-1H	100	None	No
208	15'	16'	21151	1322	110.2	EMPTY	100	None	No
209	15'6"	24'	32932	1412	118	SS-1	150	None	Yes
210	15'6"	24'	32814	1412	118	SS-1H	150	None	Yes
211	15'6"	24'	32830	1412	118	HFRS-2	170	H. Water	Yes
212	15'6"	24'	33876	1412	118	CQS-1HT	130	H. Water	No
300	8'	21'6"	8000	1000		ARR-MULS	100	None	No
301	8'6"	18'	7641	425	35	AA-86	100	Steam	No
302	12'	15'	12690	846	71	INDULIN 207	100	Steam	No
303	12'	20'	16920	846	71	NS-175	100	None	No
304	10'6"	16'6"	10688	648	54	NX-4190	100	None	No
340	8'	27'	10152	376	31	CAUSTIC SODA	100	None	No
350	8'6"	18'	7641	425	35	KEM-2	100	Steam	No
360	8'	16'	6016	376	31	HCL ACID	100	None	No
400	12'	15'	12690	846	71	RED DIESEL	100	None	No
410	12'	15'	12690	846	71	HYDROLENE H100T	100	None	No
500	8'	20'	7000	22			100	None	No
501	9'	8'6"	3500	12			100	None	No
512	12'	15'	12690			BOILER CONDENSAT	100	None	No
514	10'6"	16'6"	10688			Indulin Live	100	None	No
515	6'6"	6'	1000			SOAP RESIDUE	160	Steam	No
516	8'	6'	1600			SOAP	160	Steam	No
517	9'	8'6"	4000			SOAP	100	None	No
518	9'	8'6"	4000			SOAP	100	None	No

SAFETY DATA SHEET
INDULIN® AA-86

Section 1. Identification

GHS product identifier : INDULIN® AA-86

Other means of identification : Not available.

Code : INDULIN_AA86

Material uses : Asphalt Emulsifier

Supplier's details : WestRock MWV, LLC
Ingevity Division
5255 Virginia Avenue
North Charleston
South Carolina USA
29406-3615

www.ingevity.com
email: sds@ingevity.com

Tel: +1 843 740 2236, +1 800 458 4034
(0800 - 1700 EST)

In case of emergency : +1 800 424 9300 (USA) CHEMTREC

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 1B
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
SKIN SENSITIZATION - Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

Precautionary statements

Prevention : Wear protective gloves: > 8 hours (breakthrough time): Buna-N or neoprene. Wear eye or face protection: Recommended: safety glasses with side-shields or splash goggles. Wear protective clothing: Recommended: lab coat , safety apron or chemical-resistant protective suit. Avoid breathing vapor. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace.

Response : IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical

Section 2. Hazards identification

attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Ingredient name	%	CAS number
Fatty amine derivatives	100	Proprietary

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician.

Inhalation : Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact : Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 15 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in

Section 4. First aid measures

recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes severe burns. May cause an allergic skin reaction.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
nitrogen oxides

Section 5. Fire-fighting measures

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/ or face shield. If inhalation hazards exist, a full-face respirator may be required instead. Recommended: safety glasses with side-shields or splash goggles

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. > 8 hours (breakthrough time): Buna-N or neoprene

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: lab coat , safety apron or chemical-resistant protective suit

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls/personal protection

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: In situations where misting or flying may occur, use appropriate certified respirators.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Viscous liquid.]

Color : Amber. [Dark]

Odor : Not applicable.

Odor threshold : Not applicable.

pH : 9 to 11 [Conc. (% w/w): 15%]

Melting point : Not available.

Boiling point : >180°C (>356°F)

Flash point : Closed cup: 126°C (258.8°F) [Pensky-Martens.]

Burning time : Not applicable.

Burning rate : Not applicable.

Evaporation rate : Not available.

Flammability (solid, gas) : Not applicable.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : 0.89 [Water = 1]

Solubility : Insoluble in the following materials: cold water and hot water.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 5.6 to 7.3

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Section 10. Stability and reactivity

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials and acids.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Fatty amine derivatives	LD50 Oral	Rat - Male, Female	>2000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Fatty amine derivatives	Skin - Visible necrosis	Rabbit	-	3 minutes	24 hours

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Fatty amine derivatives	skin skin	Guinea pig Guinea pig	Not sensitizing Sensitizing

Mutagenicity

Product/ingredient name	Test	Experiment	Result
Fatty amine derivatives	OECD 471 471 Bacterial Reverse Mutation Test OECD 476 476 *In vitro* Mammalian Cell Gene Mutation Test	Experiment: In vitro Subject: Bacteria Metabolic activation: with and without Experiment: In vitro Subject: Mammalian-Animal Metabolic activation: with and without	Negative Negative

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Section 11. Toxicological information

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : No known significant effects or critical hazards.

Skin contact : Causes severe burns. May cause an allergic skin reaction.

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Product/ingredient name	Result	Species	Dose	Exposure
Fatty amine derivatives	Sub-acute NOAEL Oral	Rat - Male, Female	50 mg/kg	-
	Sub-acute NOAEL Oral	Rat - Male, Female	75 mg/kg	-

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Fatty amine derivatives	Acute EC10 0.32 mg/l Fresh water Acute EC50 1.17 mg/l Fresh water Acute LC50 0.94 mg/l Fresh water Chronic EC10 0.07 mg/l Fresh water	Algae Algae Fish Daphnia	72 hours 72 hours 96 hours 21 days

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Fatty amine derivatives	OECD 303A 303A Simulation Test - Aerobic Sewage Treatment - Activated Sludge Units	>99.997 % - Readily - 48 days	DOC	Activated sludge
	OECD 301 D 301D Ready Biodegradability - Closed Bottle Test	75 % - Readily - 28 days	ThOD	Activated sludge
	OECD 301 D 301D Ready Biodegradability - Closed Bottle Test	60 % - Readily - 28 days	ThOD	Activated sludge

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Fatty amine derivatives	-	-	Readily

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Fatty amine derivatives Fatty amine derivatives	5.6 to 7.3 6.1	- -	high high

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Section 12. Ecological information

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	UN2735	UN2735	UN2735
UN proper shipping name	Amines, liquid, corrosive, n.o.s. (Fatty amine derivatives). Marine pollutant (Fatty amine derivatives)	AMINES, LIQUID, CORROSIVE, N.O.S. (Fatty amine derivatives). Marine pollutant (Fatty amine derivatives)	Amines, liquid, corrosive, n.o.s. (Fatty amine derivatives)
Transport hazard class(es)	8 	8 	8 
Packing group	II	II	II
Environmental hazards	No.	Yes.	No.
Additional information	This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a. **Limited quantity** Yes. **Packaging instruction** **Passenger aircraft** Quantity limitation: 1 L **Cargo aircraft**	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules (EmS)** F-A, S-B **Special provisions** 274	The environmentally hazardous substance mark may appear if required by other transportation regulations. **Passenger and Cargo Aircraft** Quantity limitation: 1 L Packaging instructions: 851 **Cargo Aircraft Only**Quantity limitation: 30 L Packaging instructions: 855 **Limited Quantities - Passenger Aircraft**Quantity limitation: 0.5 L Packaging instructions: Y840 **Special provisions** A3, A803

Section 14. Transport information

	Quantity limitation: 30 L **Special provisions** B2, IB2, T11, TP1, TP27		

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Fatty amine derivatives	100	No.	No.	No.	Yes.	No.

State regulations

Massachusetts : None of the components are listed.

New York : None of the components are listed.

New Jersey : None of the components are listed.

Section 15. Regulatory information

Pennsylvania : None of the components are listed.

California Prop. 65

The required chemical analyses and risk assessments were performed on this product. Results indicate that there are no significant risks (or observable effects), as defined by this statute, associated with this product under conditions of normal use.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

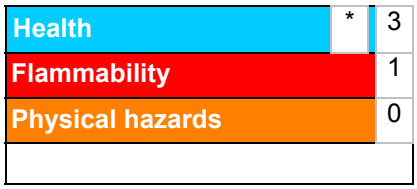
International lists

National inventory

Australia	:	All components are listed or exempted.
Canada	:	At least one component is not listed in DSL but all such components are listed in NDSL.
China	:	All components are listed or exempted.
Japan	:	All components are listed or exempted.
New Zealand	:	All components are listed or exempted.
Philippines	:	Not determined.
Republic of Korea	:	Not determined.
Taiwan	:	All components are listed or exempted.
United States	:	All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Section 16. Other information

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing	:	2015-08-31 .
Date of issue/Date of revision	:	2015-08-31
Date of previous issue	:	2015-08-21 .
Version	:	3.01
Key to abbreviations	:	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations
References	:	Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

COMPANY IDENTITY: Valley Solvents
PRODUCT IDENTITY: HYDROCHLORIC ACID 20 BE' (31.5%)
SDS NUMBER: 311004

SDS DATE: 09/15/2014
ORIGINAL: 09/15/2014

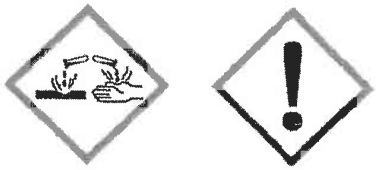
SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: HYDROCHLORIC ACID 20 BE' (31.5%)
PRODUCT USES: Mineral Acid

COMPANY IDENTITY: Valley Solvents
COMPANY ADDRESS: P O BOX 18
COMPANY CITY: Combes, TX 78535
COMPANY PHONE: 1-956-423-2791
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)



SECTION 2. HAZARDS IDENTIFICATION

DANGER!!

2.1 HAZARD STATEMENTS: (CAT = Hazard Category)
(H200s) PHYSICAL: Corrosive To Metals(CAT:1)
H290 MAY BE CORROSIVE TO METALS.
(H300s) HEALTH: Acute Toxicity, Oral(CAT:1)
H300 FATAL IF SWALLOWED.
(H300s) HEALTH: Skin Corrosion/Irritation(CAT:1)
H314 CAUSES SEVERE SKIN BURNS AND EYE DAMAGE.
(H300s) HEALTH: Acute Toxicity, Inhalation(CAT:3)
H331 TOXIC IF INHALED.(CAT:3)
(H300s) HEALTH: Specific Target Organ Toxicity, Single Exposure(CAT:3)
H335 MAY CAUSE RESPIRATORY IRRITATION.

2.2 PRECAUTIONARY STATEMENTS:
EXPOSURE PREVENTION:
CAUSES SEVERE BURNS TO EYES, SKIN, AND DIGESTIVE TRACT.
DO NOT BREATHE FUME/GAS/MIST/VAPORS/SPRAY.
P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P264	Wash with soap & water thoroughly after handling.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353	IF ON SKIN (OR HAIR): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+340	IF INHALED: Remove victim to fresh air & keep at rest in a position comfortable for breathing.
P305+351+338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do - Continue rinsing.
P310	Immediately call a POISON CENTER or doctor/physician.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P363	Wash contaminated clothing before reuse.
P403+233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal plant.

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Water	7732-18-5	231-791-2	55.9
Hydrogen Chloride	7647-01-0	231-595-7	44

TRACE COMPONENTS: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SECTION 4. FIRST AID MEASURES

4.1 MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE & DELAYED:
See Section 11 for symptoms/effects, acute & delayed.

4.2 GENERAL ADVICE:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

4.3 EYE CONTACT:
If this product enters the eyes, open eyes while under gently running water. Use sufficient force to open eyelids. "Roll" eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

4.4 SKIN CONTACT:
If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

4.5 INHALATION:
After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR). Seek immediate medical attention.

4.6 SWALLOWING:
If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.

4.7 RESCUERS:
Rescuers should be taken for medical attention, if necessary. Take a copy of label and SDS to physician or health professional with victim.

4.8 NOTES TO PHYSICIAN:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation). Victims of chemical exposure must be taken for medical attention.

SECTION 5. FIRE FIGHTING MEASURES

5.1 FIRE & EXPLOSION PREVENTIVE MEASURES:
Isolate from alkalies.

5.2 SUITABLE (& UNSUITABLE) EXTINGUISHING MEDIA:
Material does not burn. In case of fire in surroundings, use appropriate extinguishing media.

5.3 SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS FOR FIRE FIGHTERS:
Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).

SECTION 5. FIRE FIGHTING MEASURES (CONTINUED)

5.4 SPECIFIC HAZARDS OF CHEMICAL & HAZARDOUS COMBUSTION PRODUCTS:
Reacts with most metals producing hydrogen which is extremely flammable & may explode. Applying to hot surfaces requires special precautions. Closed containers may explode if exposed to extreme heat.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area).

6.2 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES:
The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves, they should be Level B: **triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus** specific for the material handled, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

6.3 ENVIRONMENTAL PRECAUTIONS:
Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

6.4 METHODS AND MATERIAL FOR CONTAINMENT & CLEAN-UP:
Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, (acid with soda ash or base with phosphoric acid), and test area with litmus paper to confirm neutralization. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING:
Use only with adequate ventilation. Avoid breathing of vapor or spray mist.
Do not get in eyes, on skin or clothing. Wear OSHA Standard full face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse. NEVER pour water into this substance. When dissolving or diluting, always add it slowly to the water.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Keep separated from strong oxidants, strong bases, combustible & reducing substances, metals.
Keep cool. Keep dry. Keep inside a well-ventilated room. Do not store above 49 C/120 F.
Keep container tightly closed & upright when not in use to prevent leakage.
Reacts with most metals producing hydrogen which is extremely flammable & may explode.
Wear full face shield, gloves & full protective clothing when opening or handling.
When empty, drain completely, replace bungs securely.

7.3 NONBULK: CONTAINERS:
Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

7.4 BULK CONTAINERS:
All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

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SECTION 7. HANDLING AND STORAGE (CONTINUED)

7.5 TANK CAR SHIPMENTS:
Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

7.6 PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:
Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

7.7 EMPTY CONTAINER WARNING:
Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.**

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 EXPOSURE LIMITS:

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Water	7732-18-5	231-791-2	None Known	None Known
Hydrogen Chloride	7647-01-0	231-595-7	5 ppm	2 ppm

MATERIAL	CAS#	EINECS#	CEILING	STEL(OSHA/ACGIH)	HAP
Hydrochloric Acid	7647-01-0	231-595-7	None Known	5 ppm	Yes

Each component showing `Yes' under "HAP" is an EPA Hazardous Air Pollutant.

8.2 APPROPRIATE ENGINEERING CONTROLS:
RESPIRATORY EXPOSURE CONTROLS
Use of engineering controls to eliminate worker exposure to fumes or mists is strongly recommended. If exposure limit is exceeded, a full-facepiece respirator with high efficiency dust/mist filter may be worn up to 50 times the exposure limit orthe maximum use concentration specified by the regulatory agency or respirator supplier, whichever is lowest.
For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure supplied air respirator. WARNING: Air purifying repspirators do not protect workers in oxygen-deficient atmospheres. Maintain airborne contaminant concentrations below exposure limits given above. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State regulations. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS
Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxilliary positive pressure Self-Contained Breathing Apparatus.

VENTILATION

LOCAL EXHAUST:	Necessary	MECHANICAL (GENERAL):	Necessary
SPECIAL:	None	OTHER:	None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

8.3 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION:
Splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:
Use gloves chemically resistant to this material. Preferred examples: Butyl rubber, Chlorinated Polyethylene, Polyethylene, Ethyl vinyl alcohol laminate ("EVAL"), Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"), Neoprene, Nitrile/butadiene rubber ("nitril") or ("NBR"), Polyvinyl chloride ("PVC") or "vinyl"), Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/ specifications provided by the glove supplier.

BODY PROTECTION:
Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers. Wash at end of each shift & before eating, smoking or using the toilet. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Fuming Liquid, Water-White to Light Yellow
ODOR:	Sharp, acid
ODOR THRESHOLD:	Not Available
pH (Neutrality):	0.0
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP,50%,Dry Point):	60 100 105 C / 140 212 221 F
FLASH POINT (TEST METHOD):	Not Applicable
EVAPORATION RATE (n-Butyl Acetate=1):	0.319
FLAMMABILITY CLASSIFICATION:	Non-Combustible
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	Not Applicable
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C	17.0
VAPOR DENSITY (air=1):	0.802
GRAVITY @ 68/68 F / 20/20 C:	
DENSITY:	1.158
SPECIFIC GRAVITY (Water=1):	1.160
POUNDS/GALLON:	9.66
WATER SOLUBILITY:	Complete
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	Not Applicable
DECOMPOSITION TEMPERATURE:	Not Available
TOTAL VOC'S (TVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC'S (CVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	37.0 Wt% / 386.7 g/L / 3.2 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	0.0
VISCOSITY @ 20 C (ASTM D445):	Not Available

* Using CARB (California Air Resources Board Rules).

SECTION 10. STABILITY & REACTIVITY

10.1 REACTIVITY & CHEMICAL STABILITY:
Stable but Reacts with most metals producing hydrogen which is extremely flammable & may explode.

10.2 POSSIBILITY OF HAZARDOUS REACTIONS & CONDITIONS TO AVOID:
Isolate from oxidizers, alkalis, heat, & open flame.

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SECTION 10. STABILITY & REACTIVITY (CONTINUED)

10.3 INCOMPATIBLE MATERIALS:
The substance is a strong acid, reacts violently with bases and is corrosive. Reacts violently with strong oxidants, forming toxic gas (chlorine) . Reacts violently with strong bases, causing fire & explosion hazard. Attacks many metals, forming flammable/explosive gas (hydrogen) .

10.4 HAZARDOUS DECOMPOSITION PRODUCTS:
Hydrogen Chloride, Phosgene from heating.

10.5 HAZARDOUS POLYMERIZATION:
Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 ACUTE HAZARDS

11.11 EYE & SKIN CONTACT:
Severe burns to skin, defatting, dermatitis.
Severe burns to eyes, redness, tearing, blurred vision.
Liquid can cause severe skin & eye burns. Wash thoroughly after handling.

11.12 INHALATION:
Severe respiratory tract irritation may occur. Vapor harmful.

11.13 SWALLOWING:
Harmful or fatal if swallowed.
The symptoms of chemical pneumonitis may not show up for a few days.

11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED
Persons with severe skin, liver or kidney problems should avoid use.

11.3 CHRONIC HAZARDS

11.31 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:
This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

11.32 IRRITANCY OF PRODUCT: This product is irritating to contaminated tissue.

11.33 SENSITIZATION TO THE PRODUCT: No component of this product is known as a sensitizer.

11.34 MUTAGENICITY: No known reports of mutagenic effects in humans.

11.35 EMBRYOTOXICITY: No known reports of embryotoxic effects in humans.

11.36 TERATOGENICITY: No known reports of teratogenic effects in humans.

11.37 REPRODUCTIVE TOXICITY: No known reports of reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (such as: within the eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

11.4 MAMMALIAN TOXICITY INFORMATION

LD50 (Oral):	900 mg/kg (Rabbit)
LC50 (Inhalation):	1108 ppm (Mouse, 1 hour)

COMPANY IDENTITY: Valley Solvents
PRODUCT IDENTITY: HYDROCHLORIC ACID 20 BE' (31.5%)
SDS NUMBER: 311004

SDS DATE: 09/15/2014
ORIGINAL: 09/15/2014

SECTION 12. ECOLOGICAL INFORMATION

12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:
This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

12.3 EFFECT OF MATERIAL ON AQUATIC LIFE:
Bluegill/Sunfish: 3.6 mg/L (48 hours)

12.4 MOBILITY IN SOIL
This material is a mobile liquid.

12.5 DEGRADABILITY
This product is biodegradable.

12.6 ACCUMULATION
This product does not accumulate or biomagnify in the environment.

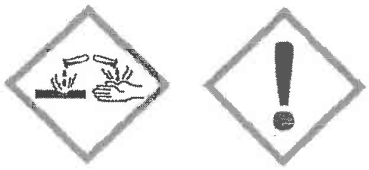
SECTION 13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirments of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Processing, use or contamination may change the waste disposal requirements. Do not dispose of on land, in surface waters, or in storm drains. Waste should be recycled or disposed of in accordance with regulations. Large amounts should be collected for reuse or consigned to licensed hazardous waste haulers for disposal.
ALL DISPOSAL MUST BE IN ACCORDANCE WITH ALL FEDERAL, STATE, PROVINCIAL, AND LOCAL REGULATIONS. IF IN DOUBT, CONTACT PROPER AGENCIES. EPA CHARACTERISTIC: D002

SECTION 14. TRANSPORT INFORMATION

IF > 13514 LB / > 6143 KG OF THIS PRODUCT IS IN 1 CONTAINER, IT EXCEEDS THE RQ OF HYDROCHLORIC ACID. "RQ" MUST BE PUT BEFORE THE DOT SHIPPING NAME.

MARINE POLLUTANT: No
DOT/TDG SHIP NAME: UN1789, Hydrochloric acid, 8, PG-III
DRUM LABEL: (CORROSIVE)
IATA / ICAO: UN1789, Hydrochloric acid, 8, PG-III
IMO / IMDG: UN1789, Hydrochloric acid, 8, PG-III
EMERGENCY RESPONSE GUIDEBOOK NUMBER: 157



COMPANY IDENTITY: Valley Solvents
PRODUCT IDENTITY: HYDROCHLORIC ACID 20 BE' (31.5%)
SDS NUMBER: 311004

SDS DATE: 09/15/2014
ORIGINAL: 09/15/2014

SECTION 15. REGULATORY INFORMATION

15.1 EPA REGULATION:
SARA SECTION 311/312 HAZARDS: Acute Health

All components of this product are on the TSCA list.
SARA Title III Section 313 Supplier Notification
This product contains the indicated <*> toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be included in all MSDSs that are copied and distributed for this material.

SARA TITLE III INGREDIENTS	CAS#	EINECS#	WT%	(REG.SECTION)	RQ(LBS)
*Hydrochloric Acid	7647-01-0	231-595-7	37	(302,311,312,313)	5000

Any release equal to or exceeding the RQ must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR 302.6 and 40 CFR 355.40 respectively. Failure to report may result in substantial civil and criminal penalties. State & local regulations may be more restrictive than federal regulations.

15.2 STATE REGULATIONS:
CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):
This product contains no chemicals known to the State of California to cause cancer or reproductive toxicity.

15.3 INTERNATIONAL REGULATIONS
The identified components of this product are listed on the chemical inventories of the following countries:
Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS), Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC), Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
D2B: Irritating to skin / eyes.
E: Corrosive Material.

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all information required by the CPR.

SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS:
HEALTH (NFPA): 3, HEALTH (HMIS): 3, FLAMMABILITY: 0, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

16.2 EMPLOYEE TRAINING
See Section 2 for Risk & Safety Statements. Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

16.3 SDS DATE: 08/05/2014

NOTICE

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency.
Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon information contained herein.
This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

Unless updated, the Safety Data Sheet is valid until 08/05/2017.
Safety Data Sheet was prepared by: Chemical Data Services, e-mail: chemdatsrv@aol.com.

SAFETY DATA SHEET

1. Identification

Product identifier **Cationic Soap Solution**

Other means of identification Not available.

Recommended use Not available.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Manufacturer: Ergon Asphalt & Emulsions, Inc.
Address: P. O. Box 1639
Jackson, MS 39215-1639
Website: www.ergonasphalt.com
Telephone: 1-800-222-7122 (Customer Service)
E-mail: sds@ergon.com
24 hour Emergency (CHEMTREC): North America 1-800-424-9300; International 1-703-527-3887

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Skin corrosion/irritation Category 2

Serious eye damage/eye irritation Category 2A

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements

Signal word Warning

Hazard statement Causes skin irritation. Causes serious eye irritation.

Prevention Wash thoroughly after handling. Wear protective gloves. Wear eye/face protection.

Response If on skin: Wash with plenty of water/. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Specific treatment (see on this label). If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information Not applicable.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
WATER		7732-18-5	80 - 95
Cationic Emulsifier		Proprietary	1 - < 3
HYDROCHLORIC ACID		7647-01-0	1 - < 3
Other components below reportable levels			0 - 40

4. First-aid measures

Inhalation

If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Move to fresh air. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately. Get medical attention immediately. Call a physician if symptoms develop or persist.

Skin contact

Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Wash off with soap and water. Rinse skin with water/shower. Call a physician or poison control center immediately. Get medical attention immediately. For minor skin contact, avoid spreading material on unaffected skin. Get medical attention if irritation develops and persists. Wash clothing separately before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Rinse with water. Flush eyes with water as a precaution. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately. Call a physician or poison control center immediately. Get medical attention if irritation develops and persists.

Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Never give anything by mouth to a victim who is unconscious or is having convulsions. Rinse mouth. Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If ingestion of a large amount does occur, call a poison control center immediately. Get medical attention if any discomfort continues.

Most important symptoms/effects, acute and delayed

Not available.

Indication of immediate medical attention and special treatment needed

In case of shortness of breath, give oxygen. Keep victim warm. Symptoms may be delayed.

General information

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Immediate medical attention is required. If you feel unwell, seek medical advice (show the label where possible). In case of shortness of breath, give oxygen. Keep victim warm. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media

Water spray, foam, dry powder or carbon dioxide.

Unsuitable extinguishing media

None.

Specific hazards arising from the chemical

Not applicable.

Special protective equipment and precautions for firefighters

Wear suitable protective equipment. Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire-fighting equipment/instructions

Move containers from fire area if you can do so without risk.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Methods and materials for containment and cleaning up

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth or absorbent material then place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not contaminate water.

7. Handling and storage

Precautions for safe handling Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Wear personal protective equipment. Do not use in areas without adequate ventilation. Wash thoroughly after handling. Avoid release to the environment. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities Keep locked up. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Store in a closed container away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
HYDROCHLORIC ACID (CAS 7647-01-0)	Ceiling	7 mg/m3
		5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
HYDROCHLORIC ACID (CAS 7647-01-0)	Ceiling	2 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
HYDROCHLORIC ACID (CAS 7647-01-0)	Ceiling	7 mg/m3
		5 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection Goggles/face shield are recommended.

Hand protection Use protective gloves.

Other Use protective gloves, goggles and suitable protective clothing. Wash promptly if skin becomes contaminated.

Respiratory protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Thermal hazards Not available.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Clear.

Physical state Liquid.

Form Liquid.

Color Colorless. Translucent.

Odor Soapy.

Odor threshold Not available.

pH 1.4 - 3.5

Melting point/freezing point Not available.

Initial boiling point and boiling range > 212 °F (> 100 °C)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg @ 20 C
Vapor density	> 1
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Slightly soluble
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Percent volatile	0 %
Specific gravity	1.02

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Not available.
Conditions to avoid	Avoid alkalis and/or heat.
Incompatible materials	May react with strong bases or oxidizing agents.
Hazardous decomposition products	Nitrogen oxides (NOx). Carbon oxides. Sulphur oxides. Irritants.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Expected to be a low ingestion hazard.
Inhalation	Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity

Product	Species	Test Results
Cationic Soap Solution (CAS Mixture)		
Acute		
Dermal		
LD50	Mouse	57960 mg/kg estimated
Inhalation		
LC50	Mouse	44320 ppm, 1 Hours estimated
Oral		
LD50	Rabbit	36000 mg/kg estimated

Components	Species	Test Results
HYDROCHLORIC ACID (CAS 7647-01-0)		
Acute		
Dermal		
LD50	Mouse	1449 mg/kg
Inhalation		
LC50	Mouse	1108 ppm, 1 Hours
	Rat	3124 ppm, 1 Hours
Oral		
LD50	Rabbit	900 mg/kg
Other		
LD50	Mouse	1449 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Risk of cancer cannot be excluded with prolonged exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

HYDROCHLORIC ACID (CAS 7647-01-0) 3 Not classifiable as to carcinogenicity to humans.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
Cationic Soap Solution (CAS Mixture)			
Fish	LC50	Fish	11280 mg/l, 96 hours estimated

Components		Species	Test Results
HYDROCHLORIC ACID (CAS 7647-01-0)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	282 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. Do not allow runoff to sewer, waterway or ground. Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazardous waste code Not regulated.

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN2735
UN proper shipping name	Amines, Liquid, Corrosive, n.o.s. (Cationic Soap Solution)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Special precautions for user	Not available.

IATA

UN number	UN1050
UN proper shipping name	Hydrogen chloride, anhydrous solution
Transport hazard class(es)	
Class	2.3
Subsidiary risk	8
Packing group	Not applicable.
Environmental hazards	No.
ERG Code	2CP
Special precautions for user	Not available.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN1050
UN proper shipping name	HYDROGEN CHLORIDE, ANHYDROUS SOLUTION
Transport hazard class(es)	
Class	2.3
Subsidiary risk	8
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No.
EmS	F-C, S-U
Special precautions for user	Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
One or more components are not listed on TSCA.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

HYDROCHLORIC ACID (CAS 7647-01-0) Listed.

US EPCRA Section 304 Extremely Haz. Subs. & CERCLA Haz. Subs.: Section 304 EHS reportable quantity

HYDROCHLORIC ACID (CAS 7647-01-0) 5000 LBS

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
HYDROCHLORIC ACID	7647-01-0	5000	500 lbs		

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
HYDROCHLORIC ACID	7647-01-0	1 - < 3

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

HYDROCHLORIC ACID (CAS 7647-01-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

HYDROCHLORIC ACID (CAS 7647-01-0)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2)

HYDROCHLORIC ACID (CAS 7647-01-0)

DEA Essential Chemical Code Number

HYDROCHLORIC ACID (CAS 7647-01-0) 6545

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

HYDROCHLORIC ACID (CAS 7647-01-0) 20 %WV

DEA Exempt Chemical Mixtures Code Number

HYDROCHLORIC ACID (CAS 7647-01-0) 6545

US state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. Massachusetts RTK - Substance List

HYDROCHLORIC ACID (CAS 7647-01-0)

US. New Jersey Worker and Community Right-to-Know Act

HYDROCHLORIC ACID (CAS 7647-01-0) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

HYDROCHLORIC ACID (CAS 7647-01-0)

US. Rhode Island RTK

HYDROCHLORIC ACID (CAS 7647-01-0)

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 05-15-2015

Version # 01

Further information HMIS® is a registered trade and service mark of the NPCA.

References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
Korea. Accidental Release Prevention Substances (Presidential Decree of Toxic Chemical Control Law, Executive Order No. 19203)
Korea. Dangerous Substances Threshold Quantity (Presidential Decree of Dangerous Substances Safety Management Act No. 18406, Schedule 1)
Korea. Harmful Substances Prohibited from Manufacturing (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 29)
Korea. Harmful Substances Requiring Permission for Manufacture or Use (Presidential Decree on the Industrial Safety and Health Act (No. 13053), Article 30)
Korea. Non-Toxic Chemicals List (National Institute of Environment Research (NIER) Public Notice No. 1997-10, as amended)
Korea. Observational Chemicals (Ministerial Decree of TCCL Article 6)
Korea. OELs. Regulation for Permitted Concentration of Hazardous Substances (Ministry of Labor (MOL) Public Notice No. 1986-45, as amended)
Korea. Prohibited Chemical Substances (TCCL Article 11)
Korea. Regulated volatile organic compounds (VOCs) (MOE Notice No. 2001-36, March 8, 2001, as amended)
Korea. Restricted Chemical Substances (TCCL Article 11)
Korea. Toxic Chemical Control Law (TCCL), Existing Chemicals Inventory (KECI)
Korea. Toxic Chemical Control Law (TCCL), pre-1997 List
Korea. Toxic Chemicals (TCCL Article 10)
Korea. Toxic Release Inventory (TRI) Chemicals (TCCL Article 14)
Taiwan. Dangerous Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
Taiwan. Industrial Precursor Chemicals (Categories and Regulations Governing Inspection and Declaration of Industrial Precursor Chemicals, MOEA Decree No. 87, as amended)
Taiwan. OELs. (Standards on Workplace Atmosphere of Dangerous and Hazardous Materials)
Taiwan. Toxic Chemical Substances (TCS) (List of Toxic Chemical Substances announced by the Environmental Protection Administration)
Taiwan. Toxic Materials (Rules on Hazard Communication of Dangerous Materials and Toxic Materials)
HSDB® - Hazardous Substances Data Bank
JIS Z 7250: 2005 Safety data sheet for chemical products-Part 1:Content and order of sections
JCIA GHS Guideline, October 2008
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits

Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision Information	Composition / Information on Ingredients: Ingredients Physical & Chemical Properties: Multiple Properties Transport Information: Material Transportation Information

SAFETY DATA SHEET

1. Identification

Product identifier **Asphalt**

Other means of identification

SDS number 208-GHS

Synonyms PBA/PG Grade Paving Asphalt; AR/AC Paving Grade Asphalt; AC Grade Petroleum Asphalt; Asphalt Cement; PEN Grade Asphalt; AS20; Emulsion Base Stock (E.B.S.) Asphalt; Asphalt, Flux; Asphalt, Saturant; Solvent Deasphalted Bottoms Petroleum Asphalt; Propane Deasphalted Bottoms Petroleum Asphalt; Vacuum Tower Bottoms Petroleum Asphalt; Steam Refined Asphalt; Mildly Oxidized Petroleum Asphalt

Recommended use Asphalt products are to be used as road and highway paving applications; waterproofing and sealing applications; coatings; or other engineering applications. Use in other applications may result in higher exposures and require additional engineering controls and personal protective equipment.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier Valero Marketing & Supply Company and Affiliates
One Valero Way
San Antonio, TX 78269-6000

General Assistance 210-345-4593

E-Mail CorpHSE@valero.com

Contact Person Industrial Hygienist

Emergency Telephone 24 Hour Emergency 866-565-5220
1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Carcinogenicity Category 2

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Suspected of causing cancer.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection.

Response If exposed or concerned: Get medical advice/attention.

Storage Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Asphalt	8052-42-4	0 - 100
Vacuum tower bottoms	64741-56-6	0 - 100

Distillates, petroleum residues, vaccum	68955-27-1	0 - 15
Hydrogen sulfide	7783-06-4	<0.1
Polycyclic Aromatic Hydrocarbons	130498-29-2	<0.1

Composition comments Dangerous amounts of hydrogen sulfide, a highly toxic gas, may be present, especially in the headspace of containers.

4. First-aid measures

Inhalation Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.

Skin contact In case of contact with hot or molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily. Remove contaminated clothing and shoes. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.

Ingestion Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.

Most important symptoms/effects, acute and delayed Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Conjunctivitis. Proteinuria. Defatting of the skin. Rash.

Indication of immediate medical attention and special treatment needed In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media Water spray. Water fog. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet.

Specific hazards arising from the chemical Thermal decomposition or combustion may liberate toxic gases or fumes.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire-fighting equipment/instructions Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.

Methods and materials for containment and cleaning up

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Extinguish all flames in the vicinity. Keep combustibles (wood, paper, oil, etc.) away from spilled material.

Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible.

Small Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Cover with plastic sheet to prevent spreading. Collect spillage. Following product recovery, flush area with water. Prevent product from entering drains. Do not allow material to contaminate ground water system. Clean surface thoroughly to remove residual contamination. Wipe up with absorbent material (e.g. cloth, fleece).

Environmental precautions

If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling

Wear personal protective equipment. Avoid breathing mist or vapor from heated material. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. Do not handle, store or open near an open flame or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use only non-sparking tools. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Material is normally stored in closed tanks at 250 to 375F. Do not handle, store or open near an open flame or sources of ignition. Protect material from direct sunlight. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	20 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Asphalt (CAS 8052-42-4)	TWA	0.5 mg/m3	Inhalable fraction.
Hydrogen sulfide (CAS 7783-06-4)	STEL	5 ppm	
	TWA	1 ppm	
Vacuum tower bottoms (CAS 64741-56-6)	TWA	0.5 mg/m3	Inhalable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Asphalt (CAS 8052-42-4)	Ceiling	5 mg/m3	Fume.
Hydrogen sulfide (CAS 7783-06-4)	Ceiling	15 mg/m3	
		10 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Vacuum tower bottoms (CAS 64741-56-6)	Ceiling	5 mg/m3	Fume.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection Avoid exposure - obtain special instructions before use. Wear protective gloves. Protective gloves.

Other Wear chemical-resistant, impervious gloves. Flame retardant protective clothing is recommended.

Respiratory protection Wear a NIOSH-approved (or equivalent) respirator as needed.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Dark brown to black liquid at normal use temperatures above 300F. Semi-solid at 70F.

Physical state Liquid.

Form Semi-Solid at 70F

Color Brown/black.

Odor Strong petroleum.

Odor threshold Not available.

pH Not available.

Melting point/freezing point 100 - 150 °F (37.78 - 65.56 °C) (Softening point)

Initial boiling point and boiling range 700 - 1100.1 °F (371.11 - 593.39 °C)

Flash point > 350.1 °F (> 176.7 °C) Closed Cup

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) > 0.9

Flammability limit - upper (%) < 7

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure < 0.01 kPa @ 20 °C

Vapor density > 1.6 (Air = 1)

Relative density 1 - 1.2 (Water=1)

Solubility(ies)

Solubility (water) Not available.

Partition coefficient (n-octanol/water) Not available.

Auto-ignition temperature > 600.1 °F (> 315.61 °C)

Decomposition temperature Not available.

Viscosity Not available.

10. Stability and reactivity

Reactivity Not available.

Chemical stability Stable under normal temperature conditions and recommended use.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Conditions to avoid Flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.

Incompatible materials Strong oxidizing agents.

Hazardous decomposition products No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion May be harmful if swallowed.

Inhalation May be harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.

Skin contact May cause skin irritation.

Eye contact May cause eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Conjunctivitis. Proteinuria. Defatting of the skin. Rash.

Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Components	Species	Test Results
Hydrogen sulfide (CAS 7783-06-4)		
Acute		
Inhalation		
LC50	Rat	> 0.38 mg/l, 960 Minutes

Skin corrosion/irritation Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Suspected of causing cancer. Contains polycyclic aromatic compounds (PACs). Prolonged and/or repeated skin contact with certain PACs has been shown to cause skin cancer. Prolonged and/or repeated exposures by inhalation of certain PACs may also cause cancer of the lung and of other sites of the body.
Occupational exposure to straight-run asphalts and their emissions during road paving: 2B Possibly carcinogenic to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Asphalt (CAS 8052-42-4)	2B Possibly carcinogenic to humans.
Vacuum tower bottoms (CAS 64741-56-6)	2B Possibly carcinogenic to humans.

Reproductive toxicity Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

Further information Symptoms may be delayed.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
Hydrogen sulfide (CAS 7783-06-4)			
Aquatic			
Fish	LC50	Lake whitefish (Coregonus clupeaformis)	0.002 mg/l, 96 hours

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

US RCRA Hazardous Waste U List: Reference

Hydrogen sulfide (CAS 7783-06-4) U135

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number UN3257
UN proper shipping name Elevated temperature liquid, n.o.s.
Transport hazard class(es)
Class 9
Subsidiary risk -
Packing group III
Special precautions for user Not available.
Special provisions IB1, T3, TP3, TP29
Packaging exceptions None
Packaging non bulk None
Packaging bulk 247

IATA

UN number UN3257
UN proper shipping name Elevated temperature liquid, n.o.s.
Transport hazard class(es)
Class 9
Subsidiary risk -
Label(s) 9
Packing group Not applicable.
Environmental hazards No.
ERG Code 9L
Special precautions for user Not available.

IMDG

UN number UN3257
UN proper shipping name ELEVATED TEMPERATURE LIQUID, N.O.S.
Transport hazard class(es)
Class 9
Subsidiary risk -
Label(s) 9
Packing group III

Environmental hazards

Marine pollutant No.

EmS F-A, S-P

Special precautions for user Not available.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Asphalt (CAS 8052-42-4)	LISTED
Hydrogen sulfide (CAS 7783-06-4)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
Hydrogen sulfide	7783-06-4	100	500 lbs		

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Polycyclic Aromatic Hydrocarbons (CAS 130498-29-2)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Hydrogen sulfide (CAS 7783-06-4)

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations WARNING: This product contains chemicals known to the State of California to cause cancer.

US. Massachusetts RTK - Substance List

Asphalt (CAS 8052-42-4)
Hydrogen sulfide (CAS 7783-06-4)
Vacuum tower bottoms (CAS 64741-56-6)

US. New Jersey Worker and Community Right-to-Know Act

Asphalt (CAS 8052-42-4)
Hydrogen sulfide (CAS 7783-06-4)
Polycyclic Aromatic Hydrocarbons (CAS 130498-29-2)
Vacuum tower bottoms (CAS 64741-56-6)

US. Pennsylvania Worker and Community Right-to-Know Law

Asphalt (CAS 8052-42-4)
Hydrogen sulfide (CAS 7783-06-4)
Polycyclic Aromatic Hydrocarbons (CAS 130498-29-2)
Vacuum tower bottoms (CAS 64741-56-6)

US. Rhode Island RTK

Hydrogen sulfide (CAS 7783-06-4)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Asphalt (CAS 8052-42-4)
Vacuum tower bottoms (CAS 64741-56-6)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

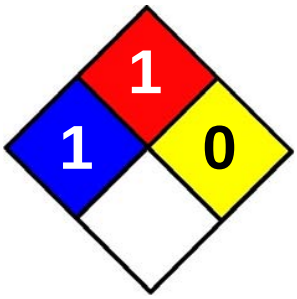
16. Other information, including date of preparation or last revision

Issue date 27-June-2013

Revision date 05-May-2014

Version # 02

NFPA Ratings



References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use , the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

Safety Data Sheet
Butonal® NX 4190

1. Identification

Product identifier used on the label

Butonal® NX 4190

Recommended use of the chemical and restriction on use
Recommended use*: Raw material
Suitable for use in industrial sector: chemical industry

* The “Recommended use” identified for this product is provided solely to comply with a US Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification
Chemical family: Polymer, dispersion

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

No need for classification according to GHS criteria for this product.

Label elements

The product does not require a hazard warning label in accordance with GHS criteria.

Hazards not otherwise classified

No specific dangers known, if the regulations/notes for storage and handling are considered. If the product adheres to skin, irritation may occur when it dries.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Emergency overview

CAUTION:
If the product adheres to skin, irritation may occur when it dries.
Use with local exhaust ventilation.
Wear suitable protective clothing, gloves and eye/face protection.
Wear full face shield if splashing hazard exists.

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

This product does not contain any components classified as hazardous under the referenced regulation.

According to Regulation 1994 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
Trade Secret	50.0 - 70.0 %	Proprietary Polymer
7732-18-5	20.0 - 40.0 %	Water
Trade Secret	1.0 - 5.0 %	Quaternary ammonium compound
64-17-5	1.0 - 5.0 %	Ethanol
Trade Secret	1.0 - 5.0 %	Organic Acid
Trade Secret	0.5 - 1.5 %	Inorganic Substance
Trade Secret	0.5 - 1.5 %	Alcohols, ethoxylated

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Remove the affected individual into fresh air and keep the person calm. Assist in breathing if necessary. Immediate medical attention required.

If on skin:
Wash affected areas thoroughly with soap and water. If irritation develops, seek medical attention.

If in eyes:
Flush with copious amounts of water for at least 15 minutes. If irritation develops, seek medical attention.

If swallowed:
Immediately rinse mouth and then drink plenty of water, do not induce vomiting, seek medical attention. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Most important symptoms and effects, both acute and delayed

Symptoms: No significant symptoms are expected due to the non-classification of the product.
Hazards: No hazards anticipated.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Symptomatic treatment (decontamination, vital functions).

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
water spray, foam, dry powder

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
No particular hazards known.

Advice for fire-fighters

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

Further information:
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.
Product itself is non-combustible; fire extinguishing method of surrounding areas must be considered.

6. Accidental release measures

Further accidental release measures:
High risk of slipping due to leakage/spillage of product.

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Avoid contact with skin and eyes.

Environmental precautions

Do not release untreated into natural waters.

Methods and material for containment and cleaning up

Spills should be contained, solidified, and placed in suitable containers for disposal.

7. Handling and Storage

Precautions for safe handling

Handle in accordance with good industrial hygiene and safety practice. No special measures necessary provided product is used correctly. Ensure adequate ventilation.

Conditions for safe storage, including any incompatibilities

Further information on storage conditions: Store protected against freezing.

8. Exposure Controls/Personal Protection

Components with occupational exposure limits

Ethanol	OSHA PEL	PEL 1,000 ppm 1,900 mg/m3 ;
	ACGIH TLV	STEL value 1,000 ppm ;

Advice on system design:
Ensure adequate ventilation.

Personal protective equipment

Respiratory protection:
Wear respiratory protection if ventilation is inadequate.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Tightly fitting safety goggles (chemical goggles). Wear face shield if splashing hazard exists.

General safety and hygiene measures:
Hands and/or face should be washed before breaks and at the end of the shift. Avoid contact with skin and eyes.

9. Physical and Chemical Properties

Form:	liquid, dispersion	
Odour:	faint odour	
Odour threshold:		No data available.
Colour:	white	
pH value:	approx. 5.0 - 5.6	
Information on: Water		
Melting point:	0 °C	

Information on: Water		
Boiling point:	100 °C	

Flash point:	> 300 °F	(Unspecified)
Flammability:	not flammable	
Lower explosion limit:		not applicable
Upper explosion limit:		not applicable
Information on: Water		
Vapour pressure:	23.4 hPa	(20 °C) Literature data.

Density:	approx. 0.90 - 0.95 g/cm³	(20 °C)
Relative density:		No data available.
Vapour density:		not determined
Partitioning coefficient n-octanol/water (log Pow):		not applicable

Self-ignition temperature:		not self-igniting
Viscosity, dynamic:	approx. 250 - 2,000 mPa.s	
Solubility in water:		(15 °C) partly soluble
Miscibility with water:		miscible
Evaporation rate:		No data available.
Other Information:	Range of particle size: < 0,1 µm - 10 µm	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Corrosion to metals:
Corrosive effects to metal are not anticipated.

Oxidizing properties:
not fire-propagating

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is chemically stable.

Conditions to avoid
Avoid extreme heat.

Incompatible materials
metal salts

Hazardous decomposition products

Decomposition products:
Hazardous decomposition products: carbon dioxide, carbon monoxide, hydrocarbons

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. Virtually nontoxic by inhalation. Ingestion may cause gastrointestinal disturbances. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Oral
Type of value: LD50
Species: rat

Value: > 2,000 - 10,000 mg/kg

Inhalation
Type of value: ATE
Value: > 5 mg/l
Exposure time: 4 h
Determined for mist

Dermal
Type of value: ATE
Value: > 5,000 mg/kg

Assessment other acute effects
Assessment of STOT single:
Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion
Assessment of irritating effects: Not irritating to eyes and skin. May cause mechanical irritation. If the product adheres to skin, irritation may occur when it dries. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Skin
Species: rabbit
Result: non-irritant
Method: OECD Guideline 404

Eye
Species: rabbit
Result: non-irritant
Method: OECD Guideline 405

Sensitization
Assessment of sensitization: Skin sensitizing effects were not observed in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Aspiration Hazard
not applicable

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: No adverse effects were observed after repeated exposure in animal studies. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Genetic toxicity
Assessment of mutagenicity: The substance was not mutagenic in bacteria. The product has not been tested. The statement has been derived from substances/products of a similar structure or composition.

Carcinogenicity
Assessment of carcinogenicity: The whole of the information assessable provides no indication of a carcinogenic effect.

Reproductive toxicity

Assessment of reproduction toxicity: Not expected to cause reproductive toxicity (based on composition).

Teratogenicity
Assessment of teratogenicity: The data available for an assessment of the effect of the substance on developmental toxicity are not sufficient for a proper evaluation.

Experiences in humans
According to experience, the product is considered to be harmless to health if used in the correct manner.

Other Information
Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The statement was derived from products of similar composition.

Symptoms of Exposure

No significant symptoms are expected due to the non-classification of the product.

12. Ecological Information

Toxicity

Toxicity to fish
LC50 (96 h) > 100 mg/l, Brachydanio rerio (OECD Guideline 203, static)

Aquatic invertebrates
EC50 (48 h) > 100 mg/l, Daphnia magna (OECD Guideline 202, part 1, static)

Aquatic plants
EC50 (72 h) > 100 mg/l, Scenedesmus subspicatus (OECD Guideline 201)
Nominal concentration.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms
DIN EN ISO 8192-OECD 209-88/302/EEC,P. C activated sludge, domestic/EC20 (0.5 h): > 100 mg/l

The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
The product can be virtually eliminated from water by abiotic processes e.g. adsorption onto activated sludge.

Elimination information

> 70 % DOC reduction (OECD 302B; ISO 9888; 88/302/EEC,part C) Easily eliminated from water.

Bioaccumulative potential

Bioaccumulation potential

Based on its structural properties, the polymer is not biologically available. Accumulation in organisms is not to be expected.

Mobility in soil

Assessment transport between environmental compartments
No data available.

Additional information

Adsorbable organically-bound halogen (AOX):
No data available.

Other ecotoxicological advice:
Do not release untreated into natural waters. At the present state of knowledge, no negative ecological effects are expected.

Ecological data are determined by analogy.

13. Disposal considerations

Waste disposal of substance:
Incinerate or dispose of in a licensed facility. Do not discharge into drains/surface waters/groundwater.

Container disposal:
Dispose of in a licensed facility. Recommend crushing, puncturing or other means to prevent unauthorized use of used containers.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Not hazardous;

CERCLA RQ	CAS Number	Chemical name
100 LBS	64-17-5	Ethanol

State regulations

State RTK	CAS Number	Chemical name
MA, NJ, PA	64-17-5	Ethanol
PA	Trade Secret	Organic Acid
MA, NJ, PA	Trade Secret	Inorganic Substance

CA Prop. 65:
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

NFPA Hazard codes:
Health : 1 Fire: 0 Reactivity: 0 Special:

HMIS III rating
Health: 1 Flammability: 1 Physical hazard: 0

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2014/07/25

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.